

REMARKS

I. Preliminary Remarks

In the Final Office Action, claim 22 was objected under 35 U.S.C. Section 112, second paragraph, as being indefinite. In response, claim 22 has been amended to provide proper antecedent basis for the "filter circuit." Accordingly, Applicant respectfully submits that the objection to claim 22 under 35 U.S.C. 112, second paragraph, be withdrawn. Claims 1-31 are pending.

Applicant wishes to express his appreciation to the Examiner for September 3, 2004 telephone interview. The following remarks are in accordance with the material discussed in the telephone interview.

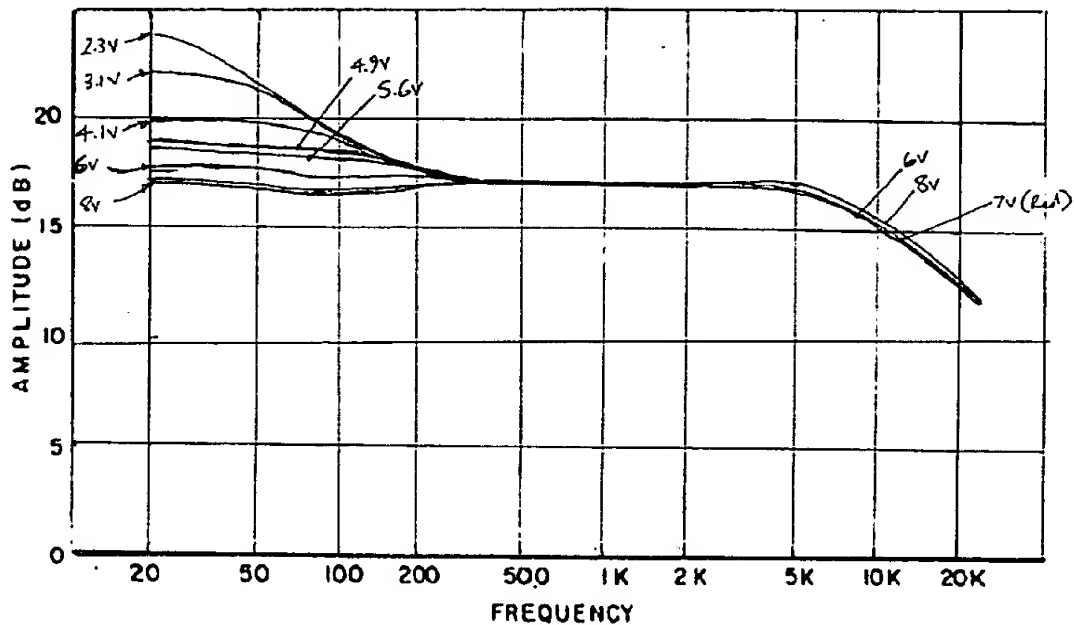
II. 102(b) Rejection based on House (U.S. Patent NO. 4,809,338)

In the Final Office Action, claims 1, 2, 9-12, 15, and 19 were rejected under 35 U.S.C. 102(b) as being anticipated by House. The Office Action indicates that Figure 3 of House discloses low frequency boosting being maximum at low frequencies and minimum at high frequencies, citing Column 5, lines 22-31, and the greater the amplitude (i.e. volume) the higher the frequency of the components of the signal appearing at the input terminal, i.e., the filter allows less low frequency components by changing the corner frequency of the circuit, citing column 5, lines 6-16.

Applicant respectfully traverses this ground of rejection for the reasons set forth below.

House is directed to audio responsiveness for an automotive vehicle, which has its unique constraints because of the small enclosed nature of the automobile along with other design constraints as discussed in column 1, lines 25-68. With such design constraints, House is directed to compensating for the frequency response characteristics as shown in Figure 3, which is different from the Fletcher-Munson characteristics. Figure 3 of House illustrates the frequency response of a system constructed according to its invention. For comparison purposes, the graph shown below represents the frequency responses for different input signals in Figure 3

of House, which have been normalized along the mid-frequency flat section. As noted in column 5, lines 22-26 of House and as shown in the graph below, for low-level signals (less than 2 v at 1 KHz), the frequency responses for all of the input signals rises (voltage levels) below about 400 Hz. In other words, the normalized graph shown below and conversely Figure 3 of House, indicate that the corner frequency is fixed at 400 Hz for all of the input signals.



(normalized graphs of Figure 3 of House)

Figure 6 of the present application is reproduced below to compare with the normalized graph of House. Figure 6 generally represent frequency responses based on the circuit of the present invention which mimics the Fletcher-Munson waveforms normalized along the mid-frequency flat section. Figure 6 indicates that for different input signals, the frequency response rise at different frequencies. In other words, in the present invention, the corner frequency is adjusted or shifted depending on the input signal. In contrast, the normalized graph of Figure 3 of House shows that the corner frequency is fixed for all of the input signals or at 400 Hz.

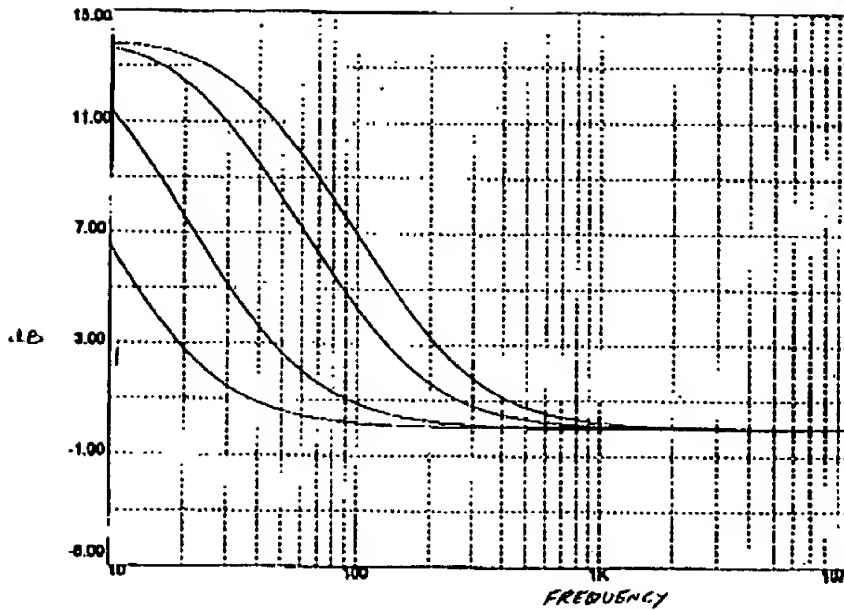


FIG. 6

As discussed above, House teaches that the corner frequency is fixed at 400 Hz for all of the voltage levels so that there is no adjusting or shifting of the corner frequency as claimed in the present invention. In this regard, each of the independent claims recites, in part, the distinguishable element:

Independent claim 1 recites, in part, “coupling the output voltage of the voltage detector to a filter circuit for adjusting a corner frequency associated with the filter circuit such that the corner frequency is inversely related to the input audio signal for boosting the bass content of the input audio signal.”

Independent claim 15 recites, in part, “shifting the corner frequency such that the corner frequency is inversely related to the strength of the input audio signal.”

Independent claim 22 recites, in part, “a control circuit including a filter circuit for adjusting a corner frequency associated with the filter circuit such that the corner frequency is inversely related to the input audio signal.”

Independent claim 26 recites, in part, “means for adjusting a corner frequency of a filter circuit such that the corner frequency is inversely related to the audio input signal.”

Independent claim 27 recites, in part, “a control circuit coupled to the R.M.S. detector comprising a filter having an associated corner frequency, the control circuit for adjusting the corner frequency such that the corner frequency is inversely related to the input audio signal.”

Independent claim 31 recites, in part, “an automatic loudness compensation circuit having an output signal coupled to the level control comprising a filter circuit for adjusting a corner frequency associated with the filter circuit such that the corner frequency is inversely related to the audio input signal.”

Accordingly, all of the independent claims and their respective dependent claims are allowable over House.

III. 103(a) Rejections:

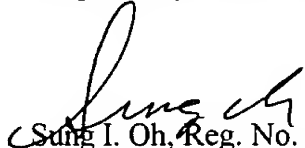
With regard to remaining pending claims, the Final Office Action principally relies on Kimura (U.S. Patent No. 5,172,358) and House, along with other secondary references to reject the claims as being obvious under 35 U.S.C. 103(a). For the reasons set forth above in this response with regard to House and the reasons set forth in the response to the first office action dated October 2, 2003, all of the pending claims are allowable, inter alia, because none of the cited references teach or suggest adjusting or shifting the corner frequency such that the corner frequency is inversely related to the audio input signal.

In view of the foregoing, it is respectfully submitted that the claims in the application patentably distinguish over the cited and applied references and are in condition for allowance. Reexamination and reconsideration of the application, as amended, are respectfully requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is respectfully requested to call Applicant's undersigned representative at (213) 689-5176 to discuss the steps necessary for placing the application in condition for allowance.

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 07-1853. Should such additional fees be associated with an extension of time, applicant respectfully requests that this paper be considered a petition therefore.

Respectfully submitted,


Sung I. Oh, Reg. No. 45,583
Attorney for Applicant

Squire, Sanders & Dempsey, LLP
810 South Figueroa, 14th Floor
Los Angeles, CA 90017
Telephone: (213) 689-5176 * Facsimile: (213) 623-4581